

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
3 February 2005 (03.02.2005)

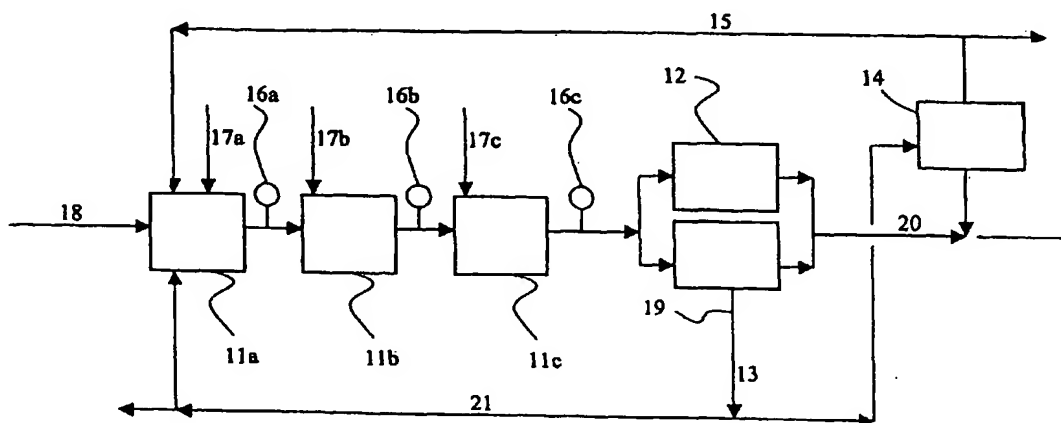
PCT

(10) International Publication Number  
**WO 2005/010221 A1**

- (51) International Patent Classification<sup>7</sup>: **C22B 3/20** // 19:00
- (21) International Application Number: PCT/FI2004/000455
- (22) International Filing Date: 15 July 2004 (15.07.2004)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data: 20031119 31 July 2003 (31.07.2003) FI
- (71) Applicant (for all designated States except US): **OUT-OKUMPU OYJ** [FI/FI]; Riihitontuntie 7 D, FI-02200 Espoo (FI).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **JÄRVINEN, Aimo** [FI/FI]; Poppelitie 11, FI-67200 Kokkola (FI). **JUDIN, Kai** [FI/FI]; Viirretie 107, FI-68240 Alaviirre (FI). **NATUNEN, Harri** [FI/FI]; Välskärinkatu 8, FI-67100 Kokkola (FI). **ONONEN, Yrjö** [FI/FI]; Pyynkuja 6, FI-67800 Kokkola (FI). **TALONEN, Panu** [FI/FI]; Ketotie 12, FI-67600 Kokkola (FI).
- (74) Agent: **PAPULA OY**; P.O. Box 981 (Fredrikinkatu 61 A), FI-00101 Helsinki (FI).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- Published:**
- with international search report
  - before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

[Continued on next page]

(54) Title: METHOD AND APPARATUS FOR CONTROLLING METAL SEPARATION



(57) Abstract: The invention relates to a method and apparatus for controlling a continuous metal removal in conjunction with a zinc preparation process, in which the metal removal is performed in one or more reactors (11a-c), in conjunction with the reactor, the redox potential (16a-c) and the acidity and/or basicity are measured, and based on the measurement results, the process variables (17a-c) of the metal removal are adjusted towards the desired direction. According to the invention, the redox potential measurements (16a-c) are performed from the sludge produced in the reactor in conjunction with the outlet pipe of the reactor outside the reactor, and the measuring instrument (16a-c) is purified at predetermined intervals.



---

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*